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ABSTRACT

A case study illustrates the value of high-level conceptualization using a recognized nursing model in a clinical situation. The client was a distraught, recent immigrant of Spanish descent who had given birth to premature twins, had no one to speak to in her language, had little social support from family, and whose husband was unemployed. The family was diagnosed as unprepared to cope adequately with the stressful event of high-risk newborns. The Neuman model was chosen for care planning for this client because of multiple stressors which had either the potential for disturbing or had already disturbed family stability. The model conceptualizes stress and reaction to stress. Using the Neuman model, the nurse as primary caregiver must analyze his or her professional role function in the primary, secondary, and tertiary phases of prevention. Following this determination, the generally accepted nursing process format can serve as an acceptable tool for selecting effective interventions. Use of the Neuman model suggests that it is a most effective scientific approach to nursing action and is quite adaptable to the care of the high-risk infant. (RH)

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USE OF THE NEUMAN HEALTH - CARE SYSTEMS MODEL IN THE CARE OF THE HIGH - RISK NEWBORN

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A case study is presented to illustrate the value of high - level conceptualization using a recognized nursing model in a clinical situation. The Neuman model was chosen for care planning in a situation involving the care of newborn infants designated as high - risk. This model, with emphasis on stressors affecting individuals, together with a plan of care designed to diminish or eliminate those stressors is seen as a most effective scientific approach to nursing actions.

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USE OF THE NEUMAN HEALTH-CARE SYSTEMS MODEL

IN THE CARE OF THE HIGH-RISK NEWBORN

Caring for the high-risk infant within the framework of total family needs is among the most demanding of nursing functions. The neonatal nurse plays a vital role in the care of these infants especially during the first moments after birth and shortly thereafter. These nurse specialists must not only be knowledgeable at physical assessment and intervention but they must also be capable of working within the framework of an organized pattern of beliefs, that is, a paradigm capable of providing a scientific basis for selected nursing interventions. Maternity nursing generally, and neonatal intensive care particularly, are most effective when interventions are formulated within the framework of a nursing model. In the clinical situation described here, the Neuman model was selected since it views the family as a complex system affected by a multiplicity of factors including stressors resulting from the unexpected birth of high-risk premature infants.

The following specific nursing situation is presented to illustrate the value of high-level conceptualization required if the benefits of professional nursing care are to be maximized.

Case Study: Premature Twin Boys:

Mr. and Mrs. G. have become the parents of premature twin boys. Gestational age is thirty-four weeks. The birth weight of Infant A is 4 lbs.; Infant B, 3.5 lbs. This was the fourth pregnancy for the family.

Their oldest child is three years, the second is two years, and their third pregnancy ended in spontaneous abortion at ten weeks. Mr. G. is twenty-seven years of age. Mrs. G. is twenty-five. Both parents speak little English. They are of Spanish descent, newly immigrated to this country. Mr. G. is unemployed. Mrs. G. had been employed as a motel maid. She is petite, underweight and pale, with the constant affect of fear and anxiety. There was a note on her kardex, her third postpartum day, that a Nurse Aide accompanied her to the premature nursery to see her babies. The infants were in separate isolettes, on respirators and receiving hyperalimentation. There was a oxygen analyzer on top of each isolette, along with a cardiac monitor attached to leads on each infant. Upon seeing her babies, Mrs. G. burst into tears. She cries frequently. There was noone on her unit who could speak her language. Her husband visited infrequently as they lived some distance from the hospital and were without transportation.

The Neuman model was chosen for care planning for this client because of multiple stressors which have either the potential for or have already disturbed the family stability. The model conceptualizes stress and reaction to stress. It values the individual's perception of his situation as well as his right to determine his own goal priorities. System stability is the model's goal. The Neuman model concept of the person as a basic structure with energy resources is expanded here to include the family (the fundamental unit of society) with energy resources capable of being exchanged in a stressful situation as family members

use each other as resources for increasing resistance to stressors, attaining system stability and reconstituting toward maximum stability.

Stability and reconstitution, however, are highly individualized concepts, taking on different meaning for different persons and changing constantly as time and circumstances vary.

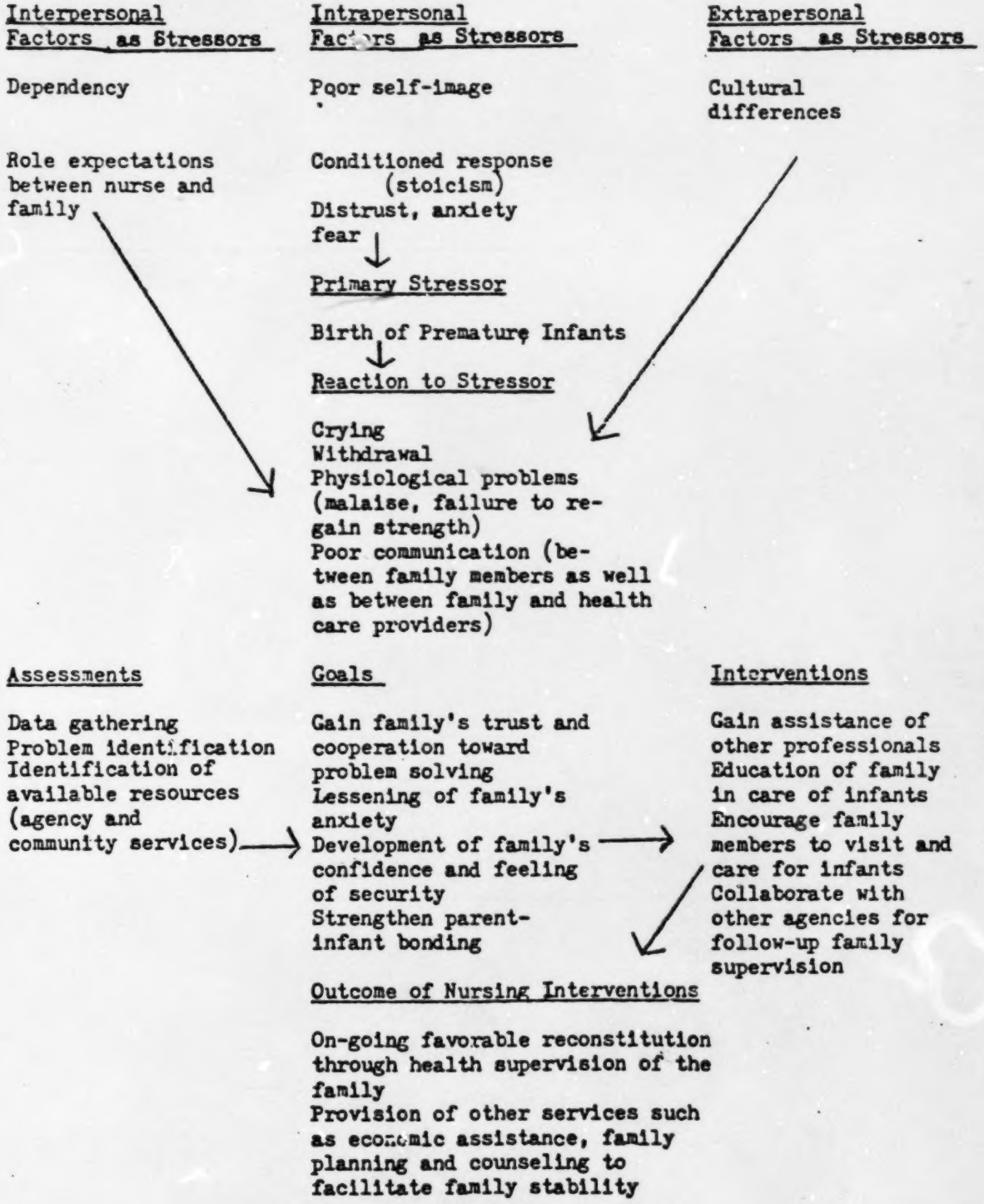
The problems described in the case study are multidimensional. Mrs. G.'s self concept appears to be less than positive. Based on the family's background, economic situation, past obstetrical history, and physical observations, the family's ability to resist stressors is determined to be poor. The family is diagnosed as extremely high-risk with regard to their potential for coping adequately with the stressful event of high-risk newborns.

Figure 1, Family Stressors and Intervention Format, illustrates use of the Neuman model to determine major stressors for the family and their reactions to these stressors. Selected assessments, goals, and interventions are listed in addition to anticipated outcomes of interventions. The potential for additional data gathering is acknowledged.

Secondary intervention required by this family is far more critical than the usual provision of postpartum physical care and basic client teaching. For example, attention to psychological and emotional trauma experienced by the parents, assessment of the reaction of the other children in the family, education to enhance parent-infant bonding all represent possible stressors upon already weakened flexible lines

Figure 1.

FAMILY STRESSORS AND INTERVENTION FORMAT


Interpersonal Factors as Stressors
Dependency
Role expectations between nurse and family
Intrapersonal Factors as Stressors
Poor self-image
Conditioned response (stoicism)
Distrust, anxiety fear
Primary Stressor
Birth of Premature Infants
Reaction to Stressor
Crying
Withdrawal
Physiological problems (malaise, failure to regain strength)
Poor communication (between family members as well as between family and health care providers)
Extrapersonal Factors as Stressors
Cultural differences
Assessments
Data gathering
Problem identification
Identification of available resources (agency and community services)
Goals
Gain family's trust and cooperation toward problem solving
Lessening of family's anxiety
Development of family's confidence and feeling of security
Strengthen parent-infant bonding
Interventions
Gain assistance of other professionals
Education of family in care of infants
Encourage family members to visit and care for infants
Collaborate with other agencies for follow-up family supervision
Outcome of Nursing Interventions
On-going favorable reconstitution through health supervision of the family
Provision of other services such as economic assistance, family planning and counseling to facilitate family stability

of defense due to the birth of the high-risk twins. The mother and the family unit are viewed as the basic structure.

Tertiary prevention focuses on readaptation and education. One example is the securing of outside community agency assistance on an ongoing basis to provide a support system for the family. Education as primary prevention becomes a goal toward increasing the ability to cope with stressors, thus strengthening the family's flexible lines of defense.

Use of the Neuman Model with High-Risk Newborns:

Figure 2. A Structural/Symptomatic View of the Premature Infant, uses the Neuman model to illustrate stressors and potential problem areas in the care of the premature twins. Using the Neuman model, the nurse as primary care giver must analyze his or her professional role function in the three areas of prevention: primary, secondary, and tertiary. Following this determination, the generally accepted nursing process format can serve as an acceptable tool for determining most effective interventions toward the highest possible level of reconstitution.

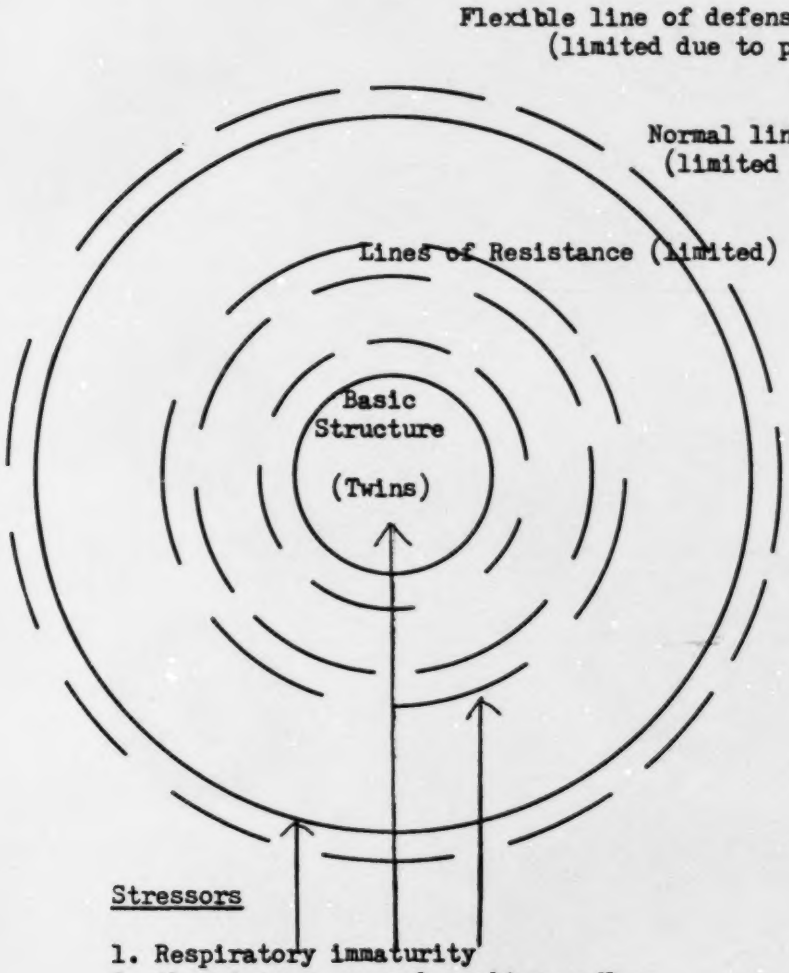
In the area of primary prevention for the family, major nursing objectives are:

1. To reduce the possibility of encounter with additional stressors
2. To strengthen the organism's flexible lines of defense

The magnitude of these concepts must be understood in relation to the family's evolvement developmentally, physically, socially, emotionally and spiritually. Of equal importance is the way in which coping

FIGURE 2.

A STRUCTURAL/SYMPTOMATIC VIEW OF THE PREMATURE INFANT



Basic Structure

1. Temperature Range
2. Genetic Structure
3. Organ Strength
4. Nutritional Needs
5. Elimination Needs
6. Emotional Needs
   (parent-infant bonding)
7. Sensorial Stimulation
8. Electrolyte Balance

Stressors

1. Respiratory immaturity
2. Absent or very weak sucking reflex
3. Poor neurological status
4. Temperature instability due to poorly developed regulatory mechanisms
5. Circulatory instability (persistance of anatomical and physiological characteristics of fetal circulation)
6. Degree of neonatal shock (birth trauma)
7. Poor resistance to sepsis (threat of necrotizing enterocolitis)
8. Hypoglycemic tendencies
9. General immaturity of all body systems

mechanisms have been learned by the family and how effective they are. The welfare of the infants cannot be separated from the dimensions of family. For example, how did this family learn to react to a pregnancy, which is in itself a stressful event? This fundamental reaction will, in turn, influence the manner in which the mother will be cared for, the way in which she will care for herself and the quality of her future health. These factors, in turn, affect the likelihood of subsequent pregnancies ending in premature deliveries.

Use of the Neuman Model with Mothers of High-Risk Newborns:

Since, from childhood on, the importance of the total environment must never be overlooked, all health care providers concerned with female clients and their families must develop an awareness of the long-range responsibility for motherhood. The learning of values and positive coping mechanisms will influence the individual and family's reaction to any future stressful event, including pregnancy. Health care attitudes, emotionalism, and social and spiritual values related to childbearing are all developed over time and are influenced either positively or negatively by significant health care providers. The nurse is the primary facilitator in a wide variety of settings, such as schools, clinics, hospitals, and the home. The nurse has a valuable role in the education of young people in the emotional, psychological, physiological, and financial responsibilities of childbearing. Acceptance of this role is critical in relation to the alarming increase in the number of adolescent pregnancies.

In the area of secondary prevention for pregnant women, major

objectives are:

1. Early case-finding
2. Treatment of symptoms

Early case-finding is reflected in recognition of possible mothers at risk for premature delivery. Careful assessment of danger signs early in pregnancy is essential. Biological stressors which may result in premature labor and delivery include: malnutrition, obesity, advanced maternal age or conversely, maternal age of fifteen or younger, and very short stature (sixty inches or less). A careful obstetric, medical, surgical, and family health history may often yield evidence of other stressors, either existing or potential. Such stressors may include: a history of previous low birth-weight infants, previous operative deliveries, Rh or ABO incompatibility, familial hypertension, diabetes or other chronic disease, the existence of third trimester bleeding, either painful or painless, and gnerally the presence of any significant problem.(Jensen, pp. 318-319).

In secondary prevention, treatment of symptoms vary according to the assessment leading to a nursing diagnosis. Some possible interventions for high-risk newborn infants are:

1. Establish and maintain a functioning airway, using oxygen and humidity as determined by continuous monitoring of the infant's condition, including respiratory effort and blood gas reports
2. Maintain thermoregulation
3. Monitor electrolyte balance
4. Provide for family interaction with the infants

5. Provide sensorial stimulation; visual, tactile and auditory

In the area of tertiary prevention for families, major objectives are:

1. Readaptation (relates to total family tertiary prevention)
2. Reeducation to prevent future occurrences (relates to total family tertiary prevention)
3. Maintenance of stability

Readaptation relates both to interventions with the family in acceptance of the high-risk newborns as well as to the care provided by the nurse for these newborns. Fo the nurse, major emphasis is placed on facilitating adaptation of the infants to their new environment. All care is directed toward adjustment of the infants' environment in such a manner as to minimize further stress in adaptation to that environment.

Support for the family ideally should include:

1. Long-range planning for discharge
2. Knowledge of community resources
3. Appropriate follow-up care
4. Financial aid, if required, resulting from the unexpected and extended hospitalization
5. Family planning needs
6. Appropriate community agency follow-up

<u>Assessment and Implementation in the Plan</u>:

Using the nursing process and the Neuman systems model, stressors must be assessed followed by a determination of the client's reaction

or possible reaction. The flexible lines of defense may or may not be intact. An assessment is accomplished from three points of view in the case study provided: first, from the perspective of the mother; second, from the perspective of the family as a total entity; and third, from the perspective of the high-risk newborn. Actual and anticipated stressors in each of these areas are assessed and must be dealt with through a relevant plan for either avoiding or diminishing their effects or possible effects. For comprehensive assessment and intervention planning, a team approach is often required. Ideally, all care givers in contact with a client would be involved in the above determinations with communication of planned efforts among all health care team members. This is requisite to comprehensive total care and provision for appropriate follow-up.

Implementation of the care plan requires on-going evaluation as to the success or failure of interventions designed to diminish or eliminate stressors. An important aspect of this process is the nursing care or team conference, which utilizes the knowledge and skills of all health care providers involved with the client.

Conclusion:

The Neuman model, with its emphasis on stressors affecting individuals, along with a nursing plan designed to diminish or eliminate stressors by strengthening lines of defense, is a most effective scientific approach to nursing action. The conceptual model is most adaptable to the care of the high-risk newborn. The ultimate goal, in

this particular care study, is to preserve the integrity of the high-risk newborn and of the family system capable of adapting positively to the total experience.

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